A-90
The Development of a Computer-aided Guideline System for Medical Disaster Response

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Following the Great Hanshin-Awaji Earthquake in 1995, Kobe University Hospital revised its emergency guidelines to incorporate the lessons learned from the earthquake. Since the revised guideline is published as a booklet of paper files, it is neither efficient nor effective to retrieve from it the necessary information during a real emergency.

To overcome this disadvantage of having to use a text-based guideline, we have developed a computer-aided guideline system. The system is designed to present a rule-based, decision cycle for decision makers that consists of the three components: 1) "Plan"; 2) "Do"; and 3) "Watch", according to the action rules abstracted from the text-based guideline. Through interactive communication with the system, a user can recognize what to do and what to have done.

Also the system provides multiple-user interfaces linked to the other functions such as weather forecasts, geographic information, triage simulation, and so on. Furthermore, the current system has the potential to be extended to intra-networking among the departments, and an inter-networking between the hospitals.

Keywords: communications; computers; decision cycle; decision-making; disaster; earthquake; forecasts, guidelines; Hanshin-Awaji Earthquake; networking; rules; simulations; text; triage; weather

G-84
The Significance of Establishment of a Network System Between Disaster Base Hospitals in Japan

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Introduction: At present, approximately 500 large hospitals have been nominated as a Disaster Base Hospital in Japan. Essentially, only one Central Disaster Base Hospital was selected in each prefecture. It is believed that it will be useful to establish a network between disaster base hospitals. This studied examined the significance of the establishment of such a network.

Materials and Methods: Forty-nine central disaster base hospitals were surveyed in February 1998 using a questionnaire. Themes questioned included: 1) agree or disagree to the establishment of the-network system; 2) name of and the nature of the facilities that would participate; 3) themes to be discussed; 4) presence of a disaster handling manual in the participating hospital; etc.

Results and Discussion: Responses were received from 43 hospitals (88%). Answers included:

1) All of the participating facilities agreed to set-up the system with/without conditions;
2) Names proposed by us were approved by about two-thirds of the respondents;
3) Themes thought to be important and included in the system were in rank order by priority:
   a) Establish cooperation between the multiple par ticipating hospitals;
   b) Common methods for use of network system dur ing a disaster;
   c) Provision of disaster education and development of disaster manuals with cooperation between the participating hospitals; and
d) Mutual exchange of stored goods in case of a disaster; and
4) A Disaster Handling Manual for the hospital was completed in only 16 of the participating facilities (<40%).

Conclusions: Several important problems were identified. The details will be reported plus the results of a second questionnaire that has been distributed to approximately 500 Disaster Base Hospitals.

Keywords: contingencies; Disaster Base Hospitals; disaster manuals; disaster plans; hospitals; networks; planning; surveys

G-85
An Intrasystem Transportation Plan for Hospital Evacuation

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Introduction: Evacuation of hospital facilities rarely is necessary, but when deemed necessary, can be fraught with complications. The goal of emergency hospital evacuation is to provide an acceptable standard of medical care during patient transport without further depletion of local emergency resources. As the costs of emergency preparedness increase, management of finite medical resources becomes crucial to successful disaster planning.

Objective: To develop a comprehensive transportation plan for evacuation of patients within a single health system.

Methods: A non-municipal, non-9-1-1, emergency medical services (EMS) company was contracted by a university hospital to provide transportation services for its inpatients. These resources then were integrated into the hospital disaster plan as the primary source of trans-

portation for hospital evacuation. This university hospital is part of a vertically integrated health system that includes multiple community affiliates designated to receive patients if evacuation becomes necessary.
Results: A non-binding agreement was developed whereby all available transportation resources will be delivered to the university hospital within 1 hour of a declaration of hospital evacuation. Resources include basic and advanced life support ambulances, wheelchair vans, and four 35 passenger buses. Primary patient triage is an inpatient attending physician responsibility, although EMS personnel with emergency physician back-up will accomplish secondary triage at the point of departure. All vehicles are staffed with EMS personnel and have communications capabilities with a central dispatcher.
Conclusion: Partnership between a university hospital and an EMS service has led to the development of a comprehensive plan to supply and manage transportation resources for emergency hospital evacuation.
Keywords: communications; emergency hospital evacuation; emergency medical services; transportation resources; triage; university hospital

G-86
Y2K: Is Healthcare Ready?
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The "Year 2000" (Y2K) issue was introduced first as "a computer problem", but we now know that every computer and device containing code or embedded systems is at risk of failure. No country will be spared, the deadline cannot be altered, and this global issue is predicted to have a uniquely strong affect on health-care delivery. As countries vary in their state of readiness and action, so do the various industries of the economy. The U.S. health-care system is lagging behind other industry sectors in acceptance of, and action addressing, this problem. Media silence and incomplete facts on the readiness of infrastructure and services have made this a difficult issue for leaders to embrace. However, as a prominent U.S. government representative stated recently, "If you don't think Y2K will be a huge problem, you simply don't understand the problem."

Experts tell us that by mid-1999, we should have completed the following to address this issue and ensure business continuity: 1) Inventory all equipment or processes to determine items "at-risk" of failure; 2) Identify and rate services, processes, and equipment as "mission critical" or not; 3) Identify and prove readiness of all vendors, suppliers, and critical business partners; 4) Remediate all code and embedded systems; and 5) Be engaged in testing of converted or remediated systems and interfaces. Contingency planning, education, and infrastructure assessment are other crucial aspects of Y2K readiness. We may lack the time to convert all problem technology in our organizations, but there still remains time to develop contingency plans, propose "work arounds", and prepare employees. Cooperation is crucial, and to "do nothing" is not an option.
Keywords: computers; health care; inventories; preparedness; remediation; Y2K; Year 2000

General Session XX
Education and Training II
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Chair: ***Ernest Yeoh, Toshiharu Yoshioka***

G-98
Managerial Decision-Making in Disaster Response
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Introduction: Objective managerial decision-making is paramount for optimal disaster response. Critical decisions often are made within the first hour of an incident based on cognitive bias and incorrect interpretation of information. Processing and management of available information is vital to incident mitigation, since time factors and communications failures associated with the disaster incident usually are uncontrollable.
Objective: To present concepts that drive judgment and managerial decision-making in disaster response.
Methods: A process analysis flow diagram (adapted from Bazerman) is presented.
Define the problem ⇒ identify the criteria ⇒ weight the criteria ⇒ generate the alternatives⇒ rate each alternative on each criterion⇒ compute the optimal decision.
Results: Bias, heuristics, and framing are used to explore the rationale behind incorrect and inefficient use of the flow diagram in managerial decision-making. Many biases are relevant to disaster management, including the overconfidence bias, which states that most people are overconfident in their abilities to correctly predict the likelihood of complex events. Heuristics, or simplifying strategies, may cause the manager to inappropriately define a problem or identify its causes. Lack of disaster planning or response based on probabilities or previous accounts of similar incidents are examples of the availability and representativeness heuristics, respectively. The presentation of information is known as "framing". *Negative framing* (the building is half destroyed) may affect criteria weighting if a poor first impression is created.
Conclusion: An effective disaster management strategy includes careful attention to judgment and managerial decision-making, recognition of heuristics, and avoidance of bias and negative framing.
Keywords: bias; decision-making; disaster management; disaster planning; disaster responses; framing; heuristics; negative framing